BY ORDER OF THE COMMANDER OF THE 51ST FIGHTER WING

51ST FIGHTER WING INSTRUCTION 15-101

9 JUNE 2016

Weather

WEATHER SUPPORT FOR OSAN AIR BASE

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This instruction implements Air Force Policy Directive (AFPD) 15-1, *Air Force Weather Operations*, and outlines policy and procedural guidance for the functions of weather support provided by the 51st Operations Support Squadron Weather Flight (51 OSS/OSW). General information for weather services, including weather observations and forecasts; weather warnings, watches, and advisories; space weather supported services; dissemination of information; and reciprocal support. This guidance is applicable to the Weather Flight (51 OSS/OSW), Airfield Operations Flight (51 OSS/OSA), Command Post (51 FW/CP), Heavy Repair (51 CES/CEOHP), 51st Communications Squadron Network Control Center (51 CS/SCOO), 51st Aerospace Medicine Squadron, Bioenvironmental Engineering (51 AMDS/SGPB), Wing Scheduling (51 OSS/OSOS), 621st Air Control Squadron (621 ACS), Supervisor of Flying (SOF), 25th Fighter Squadron (25 FS), 36th Fighter Squadron (36 FS), 5th Reconnaissance Squadron (5 RS), 731st Air Mobility Squadron (731 AMS), and all other flying units operating from Osan Air Base (AB). This instruction applies to all personnel assigned to, attached to, or supported by the 51 FW. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF Forms 847 from the field through the appropriate functional chain of command. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with (IAW) Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of IAW Air Force Records Disposition Schedule (RDS) located in the Air Force Records Information Management System (AFRIMS). The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Air Force.

SUMMARY OF CHANGES

This document has been substantially revised and must be completely reviewed. Major changes include duty hours, Mission Weather Product (MWP) process, Pilot to Metro Service (PMSV), weather sensing hardware, and snow removal operations.

Chapter 1

WEATHER FLIGHT (WF) GENERAL INFORMATION

1.1. Introduction. The mission of 51 OSS/OSW (WF) is to provide precise, timely, and tailored weather support to the 51st Fighter Wing (51 FW) and its mission partners, ensuring readiness to defend, fight, and sustain the force by exploiting weather to their advantage.

1.2. Terms. Terms and abbreviations in this document can be found in Attachment 1.

1.3. Duty Priorities. Duty priorities are documented here IAW AFMAN 15-129V2, *Air and Space Weather Operations – Exploitation*, and AFI 90-802, *Risk Management.*

Table 1.1. Duty Priorities.

1	Perform Emergency War Order taskings
2	Execute emergency evacuation
3	Respond to in-flight/ground emergencies
4	Respond to PMSV/phone patch contacts
5	Provide weather support to SOF/ flying squadron leadership
6	Resource protection: disseminate WWAs /execute SWAP operations
7	Augment FBWOS Observations for mandatory elements
8	Provide eyes forward support/collaborate with the 17 OWS
9	Produce/disseminate/brief MWP/provide other routine forecasts/briefings
10	Disseminate PIREPs (urgent, then routine)
11	MISSIONWATCH/routine weather requirements IAW daily checklists
12	Provide/arrange for additional briefings/support assistance requests
13	Weather functional training
14	Accomplish administrative tasks

1.4. Duty Hours. The Airfield Services Element (ASE) operates in-line with airfield hours of operation per Osan AB Flight Information Publication (FLIP). Mission Weather Element (MWE) forecasters are integrated into each 51 FW flying squadron (not inclusive of tenant units or Theater Support Packages) during 51 FW flying as manning allows.

1.5. Contact Information.

Table 1.2. Contact Information.

Airfield Services/Alternate Operating Location (AOL)	784-9370/4142/7740
25th Fighter Squadron Forecaster	784-2288
36th Fighter Squadron Forecaster	783-3637
Emergency Operations Center (EOC)	784-2480
Flight Chief/Staff Services	784-5474/9370
Flight Commander/Staff Services	784-6332
Organizational Email	51OSS.OSW@us.af.mil

1.6. Dissemination of Weather Information. Joint Environmental Toolkit (JET) (**https://owsjet17.us.af.mil/portal/private/GuestOsanAB/Sensor**) is the primary weather data portal for dissemination of weather information and can be accessed by any Osan computer.

Additional weather resources can be accessed on SharePoint: **https://osan.eis.pacaf.af.mil/51FW/51%20OG/51OSS/Weather/_layouts/15/start.aspx#/**

1.7. Release of Weather Information. The WF will not provide support or information to non-DOD organizations or to the general public except as authorized by AFI, 7AF/CC or the 51 FW/CC (or designated representative). In addition, no Osan AB or 51 FW agencies will release weather data to outside agencies unless first coordinated with the WF.

Chapter 2

WEATHER FLIGHT OPERATIONS—FORECAST SERVICES

2.1. Terminal Aerodrome Forecast (TAF). The Osan AB TAF with International Civil Aviation Organization (ICAO) identifier "RKSO" is issued and amended by the 17th Operational Weather Squadron (17 OWS) IAW AFMAN 15-129V1, *Air and Space Weather Operations – Characterization*, and the Installation Data Page (IDP) between the 17 OWS and 51 OSS/OSW. The WF acts as 'eyes forward' for the 17 OWS to ensure accuracy of product and timeliness of amendments.

2.2. Mission Weather Product (MWP). The WF produces decision-grade MWPs tailored to specific weather thresholds and sensitivities of 51 FW and 5 RS mission(s).

2.2.1. Approval. The format, content, timing, and delivery of MWPs and mission critical thresholds are reviewed and approved by 51 OSS, 25 FS, 36 FS, and 5 RS Directors of Operations.

2.2.2. Dissemination. MWPs will be mass/step briefed and posted to the 51 OSS/OSW SharePoint

2.2.3. Amendment/Mission-Scale Meteorological Watch (MISSIONWATCH). The WF will MISSIONWATCH all missions briefed and will amend MWPs when observed or forecast conditions cross mission critical thresholds and/or anytime a pertinent Watch, Warning, Advisory (WWA) is issued. Additionally, any significant changes to observed or forecast conditions will be passed verbally to the Top 3/SOF/5 RS Ops Desk.

2.3. 5-Day Forecast. A 5-Day forecast will be produced daily and uploaded to the 51 OSS/OSW SharePoint, and it will be amended when forecast conditions are unrepresentative of the observed conditions. This product is for planning purposes only.

2.4. Planning Weather Product. This product will be produced for the next 24 hours for airspace planning and mitigation purposes. See example in Attachment 4.

2.5. Supervisor of Flying (SOF) Support.

2.5.1. The ASE forecaster supports the SOF as follows:

2.5.1.1. Provides structured weather briefing similar to fighter squadron mass briefings.

2.5.1.2. Monitors military operating areas, training areas, ranges, or any other operating location.

2.5.1.3. Notifies SOF when actual or forecast conditions deteriorate or improve through pilot weather categories defined in AFI 11-202V3, *General Flight Rules*, at Osan AB and SOF designated alternates.

2.5.1.4. Notifies SOF of overwater sea states > 10 feet (significant wave height), steady state surface winds > 35 knots over land or > 25 knots over water for intended route of flight, and Osan AB Equivalent Chill Temperature (ECT) ≤ -25^0 F IAW 51 OGI 11-2MDSV3/**Chapter 8**, **https://osan.eis.pacaf.af.mil/51FW/51%20OG/51OGV/StanEval%20Information/OG%20Operating%20Instructions%20(51%20OG%20OIs)/11%20-**

%20Flying%20Operations/51OGOI_11-2MDS-V3%20Chap%208_A-10_F-16%20Operations%20Procedures.pdf

2.5.1.5. Notifies SOF of any WWA issuance/cancelation, significant pilot report (PIREP) received, thunderstorms enter/exit a 10 Nautical Mile (NM) radius of Osan AB, and any other phenomenon pertinent to flight safety.

2.5.2. The WF will provide cooperative weather watch training to all new SOFs IAW AFI 13-204V3_PACAFSUP, *Airfield Operations Procedures and Programs.*

2.6. Briefing Services.

2.6.1. 175-1 and verbal briefs are provided to transient aircrews; crews may submit requests via the "WX Brief" link on the JET portal **https://owsjet17.us.af.mil/**, by phone, or in person. Forecasters may refer aircrews to the 17 OWS if workload precludes prompt support IAW duty priorities.

2.6.2. Aero Club. The WF will provide verbal weather briefs for official purposes IAW AFMAN 15-129V2 (i.e. Civil Air Patrol and Initial Flying Training Programs). The WF will provide planning weather, flight level winds, and area hazards to increase pilot situational awareness and flight safety, however, these briefs are for planning purposes only.

2.7. Pilot-to-Metro-Service (PMSV). U.S. aircraft in radio range of Osan AB may contact 'Osan Metro' on 346.5 MHz to request weather information. Backup support is conducted IAW a standing Military Operating Areas (MOA) between 51 OSS/OSW and 607th Weather Squadron (607 WS), Detachment 2 (Det 2), US Army Garrison (USAG) Humphreys.

2.8. Support to Deployed/Expeditionary Units. Weather support for deployed or expeditionary units operating from Osan AB will be supported by their attached/home WF or support will be arranged by the expeditionary unit IAW AFMAN 15-129V2.

2.9. Space Weather Support. Upon request, WF personnel will provide space weather support to all 51 FW agencies and tenant units.

2.10. Chemical Downwind Messages (CDM). The WF will provide CDMs within the first hour after the stand-up of the EOC Chemical, Biological, Radiological and Nuclear (CBRN) cell.

2.11. Forecasting Limitations.

2.11.1. Interruption of the normal receipt of alphanumeric and graphic data via various interconnected weather data systems, Non-classified Internet Protocol Router Network (NIPRNET) or Secure Internet Protocol Router Network (SIPRNET) severely degrades forecast capabilities.

2.11.2. Weather data is sparse over unpopulated and maritime regions, limiting forecast capabilities. PIREPS are extremely useful over data sparse areas.

2.11.3. The WF has limited access to international weather reports and forecasts, and the language barrier further challenges the WF's ability to provide precise, timely weather data for non-U.S. airfields.

2.12. Backup Operations and the Alternate Operating Location (AOL).

2.12.1. The WF maintains the capability and Standard Operating Procedures (SOP) to support 51 FW missions in a degraded/backup mode from the AOL in building 1182, Rm

103. Evacuations of building 870 will be conducted IAW Duty Priorities, SOPs, and AFMAN15-129V2.

2.12.2. Limitations of the AOL include lack of PMSV radio.

2.12.3. In the event of a 17 OWS service outage, backup TAF, WWA, and flight weather briefing services are provided by the WF IAW a standing IDP Agreement.

Chapter 3

WEATHER FLIGHT OPERATIONS — OBSERVING SERVICES

3.1. Observation Equipment.

3.1.1. The AN/FMQ-23 Fixed Base Weather Observing System (FBWOS) is the primary equipment used to collect the full suite of weather data at Osan AB.

3.1.1.1. Collection sensors include Wind Speed and Direction, Temperature and Relative Humidity, Altimeter Barometer, Precipitation Accumulation, Precipitation ID/Visibility/Ambient Light, Cloud Height, Lighting, Ice Accretion, and Runway Heading and Light Intensity Monitor.

3.1.1.2. System Limitations.

3.1.1.2.1. Cloud Height Sensor. The FMQ-23 includes two laser ceilometers located at the primary and discontinuity sensor groups which emit vertical laser beams. The ceilometers only sense obscurations directly overhead and utilize a 30-minute trend algorithm to compute sky condition.

3.1.1.2.2. Visibility Sensor. The FMQ-23 includes two visibility sensors located at the primary and discontinuity sensor groups which detect visibility obscurants in the immediate vicinity of the sensor (i.e. basketball-sized volume) and utilize a 10-minute trend algorithm to compute visibility.

3.1.1.2.3. Precipitation Accumulation Sensor. The FMQ-23 is equipped with one rain gauge on the primary sensor group. This gauge produces the official rainfall report for Osan AB, and actual rainfall on other areas of the base may vary.

3.1.2. AN/TMQ-53 Tactical Meteorological Observing System (TMOS).

3.1.2.1. The TMOS is a lightweight, flexible, rapidly deployable weather observing system and is the primary backup to fixed observing equipment for extended outages.

3.1.2.2. Data Collection. The TMOS is able to collect wind direction, wind speed, temperature, relative humidity, dewpoint, pressure and rainfall accumulation in basic configuration. This configuration relies only upon a working solar panel.

3.1.2.3. System Limitations. Enhanced Configuration is required for TMOS to report cloud height, visibility, present weather and lightning detection. An external power source (i.e., commercial or generator power) is necessary for sustained operation of the enhanced configuration.

3.1.3. Kestrel® Environmental Weather Meter.

3.1.3.1. The Kestrel is a handheld weather device used as a backup to all other Fielded/Tactical equipment. Winds and Pressure taken with this equipment will be considered estimated.

3.2. Observation Practices. Weather observing is conducted IAW AFMAN 15-111, *Surface Weather Observations*, except as detailed herein due to unique 51 FW mission requirements.

Table 3.1. SPECI Observation Criteria.

CEILING	
3000 ft	900 ft
2000 ft	800 ft
1700 ft	700 ft
1500 ft	500 ft
1100 ft	200 ft
1000 ft	

VISIBILITY	
3	1 1/2
2 3/4	1 3/8
2 1/2	1 1/4
2 1/4	1
2	3/4
1 7/8	1/2
1 3/4	1/4
1 5/8	1/16

3.2.1. Primary/Alternate Observation Site. The official observing point is the grate located 125 feet north of Bldg 870. The AOL observing site is behind building 1185 and is located one foot prior to the restricted area, marked by a white painted rectangle. Visibility from each site is obscured by buildings and hills from southeast through southwest.

3.2.2. Augmentation. Due to system limitations and local operations requirements, the WF will augment for all cloud layers at or below 5,000 feet and visibility below 5 SM in addition to Basic Weather Watch (BWW) requirements outlined in AFMAN15-111.

3.2.3. Dissemination. JET is the primary dissemination tool for observations.

3.2.4. Backup Procedures.

3.2.4.1. FMQ-23. A combination of TMQ-53, Kestrel®, and human observer are utilized to backup FMQ-23 instruments, as applicable. Due to specific citing requirements, altimeter and winds will be reported as estimated and coded "estimated (ESTMD)". Additionally, Runway Visual Range (RVR) sensor outages are coded "RVR Information Not Available (RVRNO)".

3.2.4.2. JET. Technicians transmit observations manually, first to Air Traffic Control (ATC) agencies then continue with local dissemination. Observations are then transmitted longline through Air Force Weather Web Services (AFW-WEBS) or via another weather unit (e.g., 17 OWS, 8 OSS/OSW, etc).

Chapter 4

WEATHER WATCHES, WARNINGS, AND ADVISORIES (WWA)

4.1. General Information. WWAs are issued for the Osan AB aerodrome to protect resources and personnel from weather hazards and to alert supported agencies to mission limiting weather factors. WF personnel are responsible for ensuring WWAs are disseminated in a timely manner based on customer driven Desired Lead Time (DLT).

4.2. Dissemination.

4.2.1. Primary. JET is the primary dissemination system for all WWAs, and affected units may elect to receive automated phone calls and/or email notifications. JET automated direct telephone notifications are sent to the agencies listed in Attachment 2. All severe weather watches and warnings will be confirmed via telephone notification.

4.2.2. Backup. During JET outages, the WF will disseminate weather information by phone to all listed agencies in Attachment 2 in a pyramid notification pattern.

4.2.3. It is incumbent upon all units to ensure widest dissemination through timely and proper notifications.

4.3. WWA Criteria. WWA criteria are detailed in Attachment 2.

Chapter 5

WEATHER FLIGHT OPERATIONS – SEVERE WEATHER, TROPICAL CYCLONES, AND SNOW SERVICES

5.1. Hazardous Weather Outlook (HWO) Notices. HWOs are emailed to key leadership at least daily up to 96 hours ahead of a significant weather event. These notices are followed by WWAs, as required. See Attachment 6 for an example HWO message.

5.1.1. Impending events that could drive the issuance of an HWO include tropical storms, moderate/severe thunderstorms, heavy rain $\geq$ 2" in 12 hours, any freezing or frozen precipitation, damaging winds, etc. These notices may also cover volcanic eruptions/tsunamis as applicable.

5.1.2. 51 FW key leadership: 51 FW/CC, 51 FW/CV, 51 FW/CCC, 51 OG/CC, 51 OG/CD, 51 OG/CCC, 51 MXG/CC, 51 MXG/CD, 51 MSG/CC, 51 MSG/CD, 51 MDG/CC, 51 MDG/CD, 51 OSS/CC, 51 OSS/DO, 51 OSS/ADOs, 25 FS/CC, 25 FS/DO, 36 FS/CC, 36 FS/DO, 5 RS/CC, 5 RS/DO, 51 CES/CC, 51 CES/CD, 51 CES/CEO, 51 CES/CEOH, 51 MOS/MXOOM, 51 FW SQUARDON COMMAND TEAMS, 51 FW/Command Post, 731 AMS/CC, and 731 AMS/DO.

5.2. Severe Weather Action Plan (SWAP). The WF maintains a SWAP to assess potentially hazardous weather events and actively focus effort toward resource protection via enhanced Meteorological Watch (METWATCH), expanded eyes forward, recalling personnel, etc.

5.2.1. SWAP will be initiated when WWAs are issued for tornadic activity, hail $\geq$ ¾", damaging winds $\geq$ 50kts, Tropical Cyclone Condition of Readiness (TCCOR) 2, Freezing Precipitation, or any other hazardous situation.

5.2.2. Routine weather services during periods of severe weather will be limited to mission-essential only to ensure critical weather information is relayed in a timely manner to those controlling flying, providing base resource protection, and base leadership IAW duty priorities.

5.2.3. SWAP members will act as severe weather liaisons to 51 FW leadership.

5.3. Tropical Cyclones (TC).

5.3.1. TCCOR. Tropical Cyclone Conditions of Readiness (TCCOR) are set for the Korean Theater of Operations (KTO) by the United States Forces Korea (USFK)/J3 Director of Operations IAW USFKR 115-1, *USFK Area Weather Watches and Tropical Cyclone Procedures for the Republic of Korea*, upon recommendation by the 607 WS/CC. TCCOR criteria are located in Attachment 7.

5.3.2. Official Forecast. The Joint Typhoon Warning Center (JTWC) issues the official TC track and intensity forecast.

5.3.3. HWO Notifications. The WF will disseminate HWOs to 51 FW leadership once daily for storms west of 165°E and north of 10°N which are expected to impact the Republic of Korea (ROK) or U.S. assets in Japan when no TCCOR has been declared and 4 times daily once Osan AB is under TCCOR. There is an example of a Typhoon update email in Attachment 6.

5.4. Snow Support. Support to 51 FW will be provided IAW OAB PLAN 32-1002B, Snow and Ice Control.

Chapter 6

STAFF WEATHER SERVICES

6.1. Briefings.

6.1.1. Instrument Refresher Course (IRC). The WF will provide an in-person weather briefing at each IRC as duty priorities and manpower allow.

6.1.2. Upon request by 51 Fighter Wing Safety (51 FW/SE) or 51 Operations Group Stan/Eval (51 OG/OGV), weather briefings will be presented at the Quarterly Safety and SOF meetings addressing either seasonal weather patterns or other weather topics.

6.1.3. Upon notification by the Installation Deployment Officer (IDO), the WF will provide the weather portion of the deployment concept briefing.

6.2. Investigation Boards. WF personnel will serve as the weather member of investigation boards upon appointment by Pacific Air Forces (PACAF) or 51 FW/CC and will provide weather data for inclusion in aircraft accident reports upon request by 51 FW/SE.

6.3. Climatological Services. The WF will provide climatological summaries monthly.

6.3.1. Annual Flight Scheduling Support. A climatology package will be provided to long-range planners for utilization in annual flight scheduling meetings. Upon request, weather personnel will be present to brief the information to the scheduling board.

6.4. Exercise, Emergency Operations Center (EOC), and Crisis Action Team (CAT) Response: Staff weather personnel will respond in the event of a CAT/EOC and provide support to leadership or the 51 FW Mission Director as appropriate.

6.5. Flight Information Publication Updates. The WF will validate the accuracy of the information each time the FLIP is published and take immediate steps to correct erroneous data.

6.6. Cooperative Weather Watch. The WF will train/indoctrinate Tower/SOF personnel as required by AFI 13-204V3, *Airfield Operations Procedures and Programs,* and certify Tower controllers for limited weather observations on AF Form 3622, *Air Traffic Control/Weather Certification and Rating Record (LRA)* and provide/certify day/night visibility charts for primary/alternate tower sites.

Chapter 7

RECIPROCAL SUPPORT

7.1. Osan Command Post (51 FW/CP) will:

7.1.1. Promptly disseminate WWAs IAW applicable 51 FW/CP Quick Reaction Checklists.

7.1.2. Notify the WF of any JET outage or maintenance problem.

7.2. 25th Fighter Squadron (FS) and 36th FS will:

7.2.1. Provide daily flight schedule including mission types, locations, mass/step brief times, etc, and promptly notify the WF of any changes.

7.2.2. Relay PIREPs IAW AFI 11-202V3, via PMSV (346.5), phone patch, ATC, or the SOF anytime hazardous weather conditions jeopardize flight safety or differ substantially from mission brief provided. Mandatory elements include Time, Aircraft Type, Location, Flight Level, and Weather encountered.

7.2.3. Coordinate any unique support requirements with the WF.

7.3. 5th Reconnaissance Squadron (RS) will:

7.3.1. Provide phone notification of changes to flying schedule within 24 hours of mission.

7.3.2. Provide feedback on MWP accuracy to the WF.

7.3.3. Provide periodic mission orientation briefings to incoming weather personnel.

7.4. 731st Air Mobility Squadron (AMS) will:

7.4.1. Request inbound aircraft pass PIREPs by any means available.

7.4.2. Notify WF of any missions or operations that require weather support.

7.4.3. Provide periodic mission orientation briefings to incoming weather personnel.

7.5. Supervisor of Flying (SOF) will:

7.5.1. Notify the WF of the following:

7.5.1.1. Anytime the official airfield observation differs from conditions as observed in the Tower (i.e. ceiling/visibility, lightning/thunder, start/stop of precipitation, etc).

7.5.1.2. Promptly solicit/pass PIREPs from ranges and Military Operating Areas (MOA).

7.5.1.3. Anytime Category A minimums have been approved by the 51 OG/CC.

7.5.1.4. Designated alternate airfield.

7.5.1.5. Anytime 51 FW aircraft divert to another airfield.

7.5.1.6. When 51 FW flying is complete for the day.

7.6. Cobra (621 ACS) will:

7.6.1. Promptly pass PIREPs to the WF via **https://conference.apps.mil/webconf/7AFAirspace**.

7.7. 51st Communications Squadron (51 CS) will:

7.7.1. Provide administration of FMQ-23 and JET servers located in building 949.

7.7.2. Maintain MOAs with the WF for continued FMQ-23, JET, and TMQ-53 network support.

7.8. Heavy Repair (51 CES/CEOHP) will: Coordinate with the WF during forecast periods of heavy rain or snow to assess flooding/snow removal. Coordinate updates to OAB 32-1002B Snow and Ice Control Plan.

7.9. 51st Operations Support Squadron (51 OSS) Mission Planning Cell (MPC) will: Provide WF information regarding upcoming missions that require weather-planning data.

7.10. 51 OSS/OSAM (Airfield Management) will:

7.10.1. Provide WF with current FLIP.

7.10.2. Provide Notices to Airmen (NOTAMs) that document changes to local airfield minima.

7.10.3. Notify WF of any aircraft mishap via the secondary crash phone.

7.10.4. Disseminate WWAs IAW 51FWI15-101, Attachment 2, Table A.4.3., during JET outages.

7.10.5. Provide Runway Surface Condition (RSC) or Runway Condition Readings (RCR) in order to include on 175-1 Flight Weather Brief IAW AFMAN 15-129V2.

7.10.6. Provide periodic mission orientation briefings to incoming weather personnel.

7.11. 51 OSS/OSAR Radar Approach Control (RAPCON) will:

7.11.1. Promptly relay any PIREPs received.

7.11.2. Notify duty forecaster anytime Air Force Automated System (AFAS) is mal-functioning.

7.11.3. Provide periodic mission orientation briefings to incoming weather personnel.

7.12. 51 OSS/OSAS (Airfield Systems) will:

7.12.1. Maintain or arrange for maintenance of WF meteorological equipment and weather support communications that have been properly approved, procured, and installed IAW the annually reviewed Air Traffic Control and Landing Systems (ATCALS) Restoral Letter.

7.12.2. Notify the duty forecaster when maintenance is to be performed.

7.12.3. Respond to outages within one hour after weather personnel log an outage of equipment deemed mission critical (listed below in priority order). The on-site response may be waived by the WF Commander if the mission or weather conditions allow.

7.12.3.1. Fixed Base Weather Observing System (FMQ-23).

7.12.3.2. Weather Surveillance Radar 88 Doppler (WSR-88D), also commonly referred NEXRAD.

7.12.4. Perform barometer calibrations on TMQ-53 TMOS.

7.13. 51 OSS/OSAT (Tower) will:

7.13.1. Promptly relay any PIREPs received.

7.13.2. Conduct a Cooperative Weather Watch (CWW) IAW AFI 13-204V3, AFMAN 15-111, and local procedure.

7.13.3. Notify duty forecaster anytime AFAS is not working properly.

7.13.4. Provide periodic mission orientation briefings to incoming weather personnel.

7.14. 51 OSS/OSOS (Wing Scheduling) will:

7.14.1. Provide a copy of the daily flying schedule to the WF, if not able to access via Windows Patriot Excalibur (WINPEX) or electronic Patriot Excalibur (EPEX).

7.14.2. Ensure the 7 AF Training Calendar is updated with upcoming deployments and exercises.

7.15. 51st Aerospace Medicine Sq, Bioenvironmental Engineering (51 AMDS/SGPB) will:

7.15.1. Monitor for Particulate Matter less than 10 microns (PM10) that exist around Osan AB. The highest Air Quality Index will be selected from the following websites:

7.15.1.1. Pyeongtaek-si website: **http://aqicn.org/city/korea/gyeonggi/pyeongtaek-si/**

7.15.1.2. Osan-si website: **http://aqicn.org/city/korea/gyeonggi/osan-si/**

7.15.2. Issue Air Quality Notices for hazardous PM 10 conditions for Osan AB. Air Quality Notices will be relayed to the Osan Command Post (51 FW/CP) to initiate AtHoc messages. Air Quality Notices will also be communicated on the 51 MDG's Facebook Page at **https://www.facebook.com/51medicalgroup**. In addition, Bioenvironmental Engineering will contact Public Health. Public Health will notify the following locations to issue Air Quality Notices.

7.15.2.1. Child Development Center (CDC) Manager, Middle School Nurse, Elementary School Nurse, and School Age Programs manager.

7.15.3. Conduct Wet Bulb Globe Temperature (WBGT) monitoring in accordance with AFI 48-151.

7.16. Transient Units. All transient units/aircrews operating out of Osan AB are responsible for coordinating appropriate weather support IAW regulations.

7.17. 17 OWS. Provides primary TAF, WWA, and flight weather briefing service as detailed in AFMAN 15-129V1, *Air and Space Weather Operations-Characterization* and AFMAN 15-129V2 and the standing IDP Agreement. Assumes critical functions in a backup capacity at times when the WF is unavailable.

7.18. 607 AOC/CODW. Provide all weather support including peninsula altimeter setting updates to 621 ACS during duty hours.

ANDREW P. HANSEN, Colonel, USAF
Commander

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

51 OGI 11-2MDS V3/**Chapter 8**, *Flying Operations*, 1 June 2013
https://osan.eis.pacaf.af.mil/51FW/51%20OG/51OGV/StanEval%20Information/OG%20Operating%20Instructions%20(51%20OG%20OIs)/11%20-%20Flying%20Operations/51OGOI_11-2MDS-V3%20Chap%208_A-10_F-16%20Operations%20Procedures.pdf

AFI 11-202V3, *General Flight Rules*, 7 November 2014

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AFI 48-151, *Thermal Injury Prevention Program*, 7 April 2016

AFI 90-802, *Risk Management*, 11 February 2013

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AFMAN 33-363, *Management of Records,* 1 March 2008

AFPD 15-1, *Air Force Weather Operations*, 19 February 2010

OAB PLAN 32-1002B, *Snow and Ice Control*, 30 April 2014

USFKR 115-1, *USFK Area Weather Watches and Tropical Cyclone Procedures for the Republic of Korea*, 22 July 2014

Adopted Forms

AF Form 847, *Recommendation for Change of Publication*

AF Form 3622, *Air Traffic Control/Weather Certification and Rating Record (LRA)*

Abbreviations and Acronyms

51 FW—51st Fighter Wing

AB—Air base

AFAS—Airfield Automation System

AFCALS—Air Traffic Control and Landing Systems

AFMAN—Air Force Manual

AFPD—Air Force Policy Directive

AFRIMS—Air Force Records Information Management System

AFW-WEBS—Air Force Weather Web Services

AMS—Air Mobility Squadron

AOL—Alternate Operating Location

ASE—Airfield Services Element

ATC—Air Traffic Control

ATCALS—Air Traffic Control and Landing Systems

BDOC—Base Defense Operations Center

BWW—Basic Weather Watch

CAT—Crisis Action Team

CBRN—Chemical, Biological, Radiological, and Nuclear Weapons

CDC—Child Development Center

CDM—Chemical Downwind Message

CWW—Cooperative Weather Watch

DLT—Desired Lead Time

EOC—Emergency Operations Center

EPEX—electronic Patriot Excalibur

ESTMD—estimated

FBWOS—Fixed Base Weather Observing System

FITS—Fighter Index of Thermal Stress

FLIP—Flight Information Publication

FOD—Foreign Object Damage

FS—Fighter Squadron

GOV—Government Owned Vehicle

HWO—Hazardous Weather Outlook

IAW—In Accordance With

ICAO—International Civil Aviation Organization

IDO—Installation Deployment Officer

IDP—Installation Data Page

IRC—Instrument Refresher Course

JET—Joint Environmental Toolkit

JTWC—Joint Typhoon Warning Center

KTO—Korean Theater of Operations

MWE—Mission Weather Element

MWP—Mission Weather Product

METWATCH—Meteorological Watch

MISSIONWATCH—Mission Meteorological Watch

MOA—Military Operating Areas

MOC—Maintenance Operations Center

MPC—Mission Planning Cell

MWE—Mission Weather Element

MWP—MISSION WEATHER PRODUCT

NIPRNET—Non-secure Internet Protocol Router Network

NM—Nautical Mile

NOTAM—Notice to Airmen

OPR—Office of Primary Responsibility

OWS—Operational Weather Squadron

PACAF—Pacific Air Forces

PIREP—Pilot Report

PMSV—Pilot to Metro Service

RAPCON—Radar Approach Control

RS—Reconnaissance Squadron

RCR—Runway Condition Reading

RDS—Records Disposition Schedule

ROK—Republic of Korea

RSC—Runway Surface Condition

RVR—Runway Visual Range

RVRNO—Runway Visual Range Information Not Available

SIPRNET—Secure Internet Protocol Router Network

SOF—Supervisor of Flying

SOP—Standard Operating Procedures

SWAP—Severe Weather Action Procedures

TAF—Terminal Aerodrome Forecast

TC—Tropical Cyclones

TCCOR—Tropical Cyclone Condition of Readiness

TMOS—Tactical Meteorological Observing System

USAG—United States Army Garrison

USFK—United States Forces Korea

WBGT—Conduct Wet Bulb Globe Temperature

WF—Weather Flight

WINPEX—Windows Patriot Excalibur

WWA—Watch, Warning, Advisory

Terms

Airfield Services Element (ASE)—The ASE, located in Bldg 870, is the focal point for airfield observations, forecast collaboration, installation resource protection (i.e. 'eyes forward'), and SOF support.

Desired Lead Time (DLT)—The amount of advance notice an agency requires prior to the onset of a particular weather phenomenon in order to take protective actions.

Eyes Forward—WF forecasters are the "eyes forward" for the forecasters in the 17 OWS and integrate weather radar data, meteorological satellite imagery, lightning detection readouts, etc to create an integrated weather picture and near-term trend forecasts for the OWS. "Eyes forward" yields meaningful meteorological information not contained in coded observations to the servicing OWS and is an integral part of the METWATCH for an installation or contingency operating location.

Installation Data Page (IDP)—Agreement between 17 OWS and WF enumerating responsibilities, WWA criteria, contact numbers and other pertinent data related to support between the two organizations. The IDP is posted on the 17 OWS webpage.

Mission Weather Product (MWP)—A MWP is a customized weather product providing terrestrial and space weather data and forecasts for a specific mission, or set of missions. It fully integrates aerospace weather with the customer's tactics, weapon systems, environmental sensitivities of equipment, and other operational requirements.

MISSIONWATCH (Mission Meteorological Watch)—The monitoring of aerospace weather for a specific mission (i.e., ground, air or space) and informing supported agencies when unforecast mission-limiting phenomena could affect operations.

Mission Weather Element (MWE)—Weather personnel who provide MWPs for the operational decision cycle of their host or parent unit function as a MWE. This element also provides MWPs for sortie planning, generation, and execution.

Operational Weather Squadron (OWS)—An organization responsible for providing regional, operational-level weather forecast products and services to customers within their AOR. The 17 OWS serves the Korean Theater of Operations, and is responsible for issuance of TAFs, WWAs not issued by the WF, transient aircrew flight weather briefings, and Meteorological Watch (METWATCH) for resource protection purposes.

Severe Thunderstorm—A thunderstorm that produces hail greater than or equal to ¾ inch diameter and/or surface wind greater than or equal to 50 knots.

Severe Weather—Any weather condition that poses a hazard to property or life.

Terminal Aerodrome Forecast (TAF)—A structured, 30-hour weather forecast for the 5 NM aerodrome surrounding an airfield. Each TAF specifies the time of occurrence to the nearest hour, duration and intensity (if applicable) of weather conditions expected to occur.

Weather Flight (WF)—An umbrella term covering any military weather organization providing direct operational support at the tactical level.

Weather Watch—A special notice provided to supported customers that alerts them of a potential for weather conditions of such intensity as to pose a hazard to life or property for which the customer must take protective action.

Attachment 2

WEATHER WATCH, WARNING, ADVISORY (WWA) DISSEMINATION

Figure A2.1. The following agencies are notified via the JET notification system.

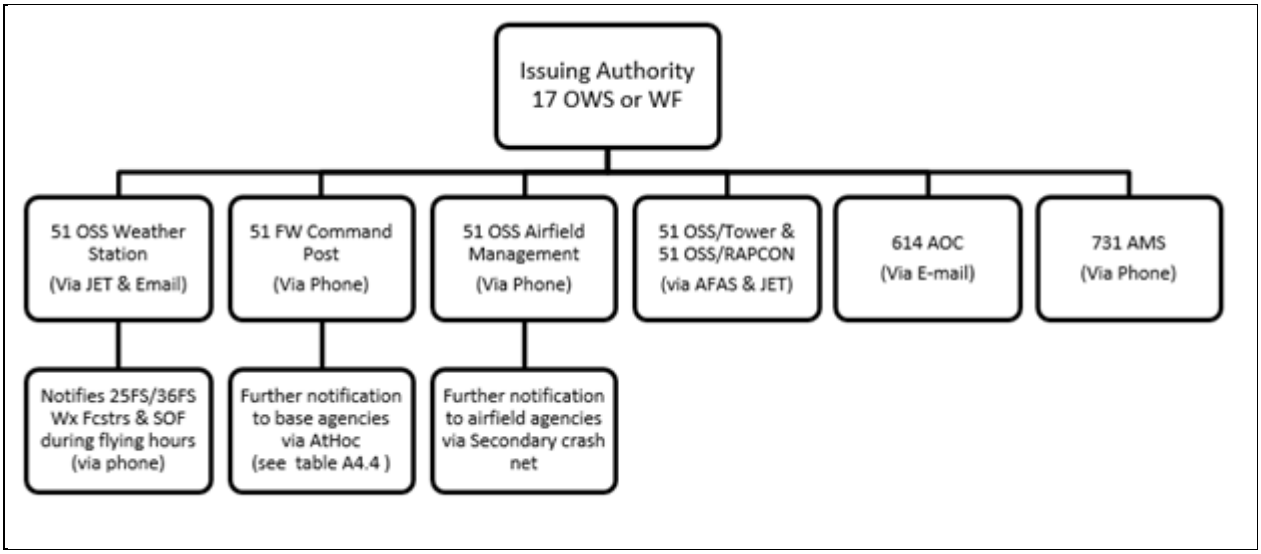


Table A2.1. Osan AB Watches.

Phenomena	**DLT (in minutes)**	**ISSUED BY**
Lightning within 5 NM	30	17 OWS
Tornado	As potential warrants	17 OWS
Severe Thunderstorm (Damaging Hail ≥ 3/4" and/or Damaging Winds ≥ 50knots)	**240**	17 OWS
Moderate Thunderstorm (Strong Winds ≥ 35kts but < 50kts and/or Large Hail < 3/4"	As potential Warrants	17 OWS
Damaging Winds ≥ 50 knots	**240**	17 OWS
Strong Winds ≥ 35 knots but < 50 knots	**As potential warrants**	17 OWS
Crosswinds ≥ 15 knots but < 25 knots	**As potential warrants**	17 OWS
Crosswinds ≥ 25 knots	**As potential warrants**	17 OWS
Freezing Precipitation	As potential warrants	17 OWS
Heavy Rainfall ≥ 2" but < 5" rain in 12 hours	**As potential warrants**	17 OWS
Heavy Rainfall ≥ 5" rain in 12 hours	**As potential warrants**	17 OWS
Heavy Snow Accumulation ≥ 2" snow depth in 12 hours	**As potential warrants**	17 OWS
Blizzard (See Note 3 in Table A2.2)	**As potential warrants**	17 OWS

Table A2.2. Osan AB Warnings.

Phenomena	**DLT (in minutes)**	**ISSUED BY**
Lightning within 5 NM	Observed	WF
Tornado	30	17 OWS
Severe Thunderstorm (Damaging Hail ≥ 3/4" and/or Damaging Winds ≥ 50knots)	**120**	17 OWS
Moderate Thunderstorm (Large Hail < 3/4" and/or Strong Winds ≥ 35 knots but < 50 knots)	**90**	17 OWS
Damaging Winds ≥ 50 knots	**120**	17 OWS
Strong Winds ≥ 35 knots but < 50 knots	**90**	17 OWS
Crosswinds ≥ 15 knots but < 25 knots	**90**	17 OWS
Crosswinds ≥ 25 knots	**90**	17 OWS
Freezing Precipitation	**120**	17 OWS
Heavy Rainfall ≥ 2" but < 5" rain in 12 hours	90	17 OWS
Heavy Rainfall ≥ 5" rain in 12 hours	**240**	17 OWS
Heavy Snow Accumulation ≥ 2" snow depth in 12	**120**	17 OWS
Blizzard (See Note 3)	90	17 OWS
Note 1. Bold items indicate different criteria and/or lead times from AFMAN 15-129V1, and are based on valid local, customer needs. **Note 2.** All forecast warnings for Osan AB will be issued by the 17 OWS unless the WF determines the threat is imminent and poses a threat to life or property. In this case, the WF will issue the forecast warning and back brief the 17 OWS ASAP. **Note 3.** Blizzard Condition (per AFMAN 15-129V1, Table 4.1.) is defined as: duration of ≥ 3 hours, sustained winds or gusts ≥ 30 knots, considerable falling and/or blowing snow, with surface visibility frequently ≤ 1/4 statute mile/0400 meters (all criteria must be met).		

Table A2.3. Osan AB Advisories.

Phenomena	**DLT (in**	**ISSUED BY**
Surface Winds ≥ 25 knots but < 35 knots	30	17 OWS
Crosswind ≥ 21 knots	Observed	WF
Crosswind ≥ 11 knots	Observed	WF
Ice FOD Potential (See Note 1)	Observed	WF
Snow Accumulation > Trace but < 2’’	60	17 OWS
Wind Chill < 30F*	Observed	WF
Wind Chill < -15F*	Observed	WF
Wind Chill ≤ -25F*	Observed	WF
Temperature ≤ 32F*	Observed	WF
Visibility ≤ 400 Meters (1/4 mile)*	Observed	WF
Visibility ≤ 100 Meters (1/16 mile)*	Observed	WF
Fighter Index of Thermal Stress Caution Conditions	Observed	WF
Fighter Index of Thermal Stress Danger Conditions	Observed	WF

Note 1. Ice Foreign Object Damage (FOD) potential is defined when any of the three conditions below exist:
ambient temperature is below 45F (7C) with standing water or a mixture of water with ice or snow in the immediate proximity of the engine inlet (i.e. WR//, LSR//, SLR//, or IR//), dew-point temperature is within 9F (5C) of the ambient air temperature between 45F (7C) and 25F (-4C), or ambient temperature is between 45F (7C) and 20F (-7C) with rain, ice pellets, snow, or fog (visibility < 5/8 mile) occurring.
*Not Intended for ATIS

Attachment 3

WEATHER IMPACTS ON CUSTOMERS

A3.1. General: The following tables identify impacts to and actions to be taken by 51 FW and Osan AB agencies when Observed Weather Advisories, Forecast Weather Advisories, Weather Watches, and Weather Warnings are issued. Impacts to the flying customers are updated and reviewed annually with each squadron, are located in WF local procedures.

Table A3.1. 51 FW Observed Weather Advisories Impacts.

THRESHOLD	DLT	IMPACT	CUSTOMER ACTION
ICE FOD Potential	Observed	Possible F-16 engine damage	Precautionary measures taken
WIND CHILL INDEX < –10°F	Observed	Sustained exposure hazardous to health	Maintenance Operations Center (MOC) and Base Defense Operations Center (BDOC) notify flightline and SF personnel
CROSSWINDS 11 kts or greater	Observed	Possible danger to U-2 flight operations	5 RS Ops Desk is alerted and relays information to mission pilot
CROSSWINDS 21 kts or greater	Observed	F-16 crosswind limit: 20 kts wet runway	SOF declares alternate airfield
VISIBILITY ≤ 1/4 statute mile	Observed	SF personnel decrease distance between patrolmen	BDOC notifies SF personnel
VISIBILITY ≤ 1/16 statute mile	Observed	Flightline work dangerous; Road travel hazardous	Flightline operations terminated; road condition change to RED (limit travel, no bicycles)
Fighter Index of Thermal Stress (FITS) Caution	Observed	Sustained exposure hazardous to health	Refer to AFI 48-151, *Thermal Injury Prevention Program*.
FITS Danger	Observed	Sustained exposure hazardous to health	Refer to AFI 48-151, *Thermal Injury Prevention Program.*

Table A3.2. 51 FW Forecast Weather Advisories Impacts.

THRESHOLD	DLT	IMPACT	CUSTOMER ACTION
WINDS greater than or equal to 25 kts but less than 35 kts	30 min	If crosswind exceeds F-16 limits	Flight operations cease
		Danger to refueling operations	POL prepares to stop refueling; moves operations inside (30 kts observed)
		Danger to communication antennas, roofing, scaffolding, and similar	CE and CS personnel secure loose equipment
SNOW ACCUMULATION greater than a trace, but less than 2 inches total depth	60 min	Affects roads and RCR	See OAB PLAN 32-1002B, *Snow and Ice Control*
		Possible roof damage	Personnel on standby to clear roofs
		Possible interruption of communication and power	Communication personnel take protective action

Table A3.3. 51 FW Weather Watch Impacts.

THRESHOLD	DLT	IMPACT	CUSTOMER ACTION
TORNADO	Potential warrants	Potential danger to personnel and resources	Personnel take protective action
CROSSWINDS ≥ 15 kts but < 25 kts	Potential warrants	Exceeds U-2 crosswind limit	5 RS Ops Desk considers declaring an alternate airfield
CROSSWINDS 25 kts or greater	Potential warrants	Exceeds A-10 and F-16 crosswind limits	SOF considers declaring alternate airfield
WINDS 50 kts or Greater	240 Min	Possible damage to aircraft and buildings	Consider hangaring aircraft and limiting outside activity
WINDS ≥ 35 kts but less than 50 kts	Potential warrants	Possible damage to communication antennas	Consider safeguarding antennas through appropriate procedures
HEAVY RAINFALL 2 inches or more in 12 hours	Potential warrants	Possible flooding base wide	Emplace sandbags at work centers
			Consider sandbagging wheels of hangared aircraft/raising ECM pods
HEAVY RAINFALL 5 inches or more in 12 hours	Potential warrants	Possible flooding base wide and damage to base resources	Consider sandbagging A-10 wheels and lift F-16 ECM pods
			Base considers EOC recall
HEAVY SNOW ACCUMULATION 2 inches depth or more in 12 hours	Potential warrants	Affects roads and RCR	See OAB PLAN 32-1002B, *Snow and Ice Control*
		Possible comm/power interruption	51 CS/51 CES personnel take protective action
		Possible roof damage	Personnel on standby to clear roofs
FREEZING PRECIPITATION	Potential warrants	Affects roads and RCR	CE Horizontal teams begin de-icing operations spin up
		A-10/F-16 do not operate in severe icing conditions	SOF considers declaring alternate
MODERATE THUNDERSTORM	Potential warrants	Potential for damage	Precautionary measures taken
SEVERE THUNDERSTORM	240 Min	Possible structural damage to aircraft	Hangar aircraft
			SOF considers declaring alternate
LIGHTNING WITHIN 5 NM	30 Min	Potential damage to base facilities, computer data, injury to personnel	Supply begins protective measures
			MOC, 1CP and AMS ATOC notify flightline personnel
BLIZZARD	Potential Warrants	Affects roads and RCR	See OAB PLAN 32-1002B, *Snow and Ice Control*
		Possible roof damage	51 CES on standby to clear roofs

Table A3.4. 51 FW Weather Warning Impacts.

THRESHOLD	DLT	IMPACT	CUSTOMER ACTION
LIGHTNING WITHIN 5 NM	Observed	Potential damage to base facilities, computer stored data, and injury to personnel	Refueling ceases
			MOC notifies flightline personnel
			SOF considers declaring alternate
TORNADO	30 min	Danger to personnel and resources	Operations cease and personnel take protective action
WINDS 50 kts or greater	120 min	Possible damage to aircraft and buildings	Aircraft hangared and outside activity limited
WINDS greater than or equal to 35 kts but less than 50 kts	90 min	Aircraft subject to damage, blowing objects	Aircraft hangared
		Possible interruption of comm/power. Damage to antennas and comm cables	Protective action taken where possible by Communication personnel
		Possible damage to base facilities from blowing objects	CE and SF personnel spot check base locations
CROSSWINDS ≥ 15 kts but LT 25kt	90 min	Exceeds U-2 crosswind limits	5 RS Ops Desk considers declaring an alternate airfield
CROSSWINDS ≥ 25kts	90 min	Exceeds F-16 crosswind limits	SOF considers declaring alternate
FREEZING PRECIP	120 min	Flight operations adversely affected by icing	Flight operations cease
		Damage to comm/power nets	CS personnel take protective action
		Icy roads/taxiways	Units place personnel on standby
MODERATE THUNDERSTORM	90 min	Potential for damage	Precautionary measures taken
SEVERE THUNDERSTORM	120 min	Structural damage to aircraft	Aircraft hangared
		Damage to engineering projects	Army COE notifies contractors
		Interruption of comm/power	CS personnel take protective action
		Damage to Government Owned Vehicles (GOVs)	Units shelter vehicles
HEAVY RAINFALL 2 inches or more in 12 hours	90 min	Affects flight operations	Sandbag A-10/lift F-16 ECM pods
		Adversely affects CE	Army COE notifies contractors
		Possible interruption to comm/power	Communication personnel take protective action
HEAVY RAINFALL ≥ 5 inches in 12 hrs	240 min	Affects flight operations	Sandbag A-10 wheels and lift F-16 ECM pods
		Possible damage to base	Possible EOC Recall

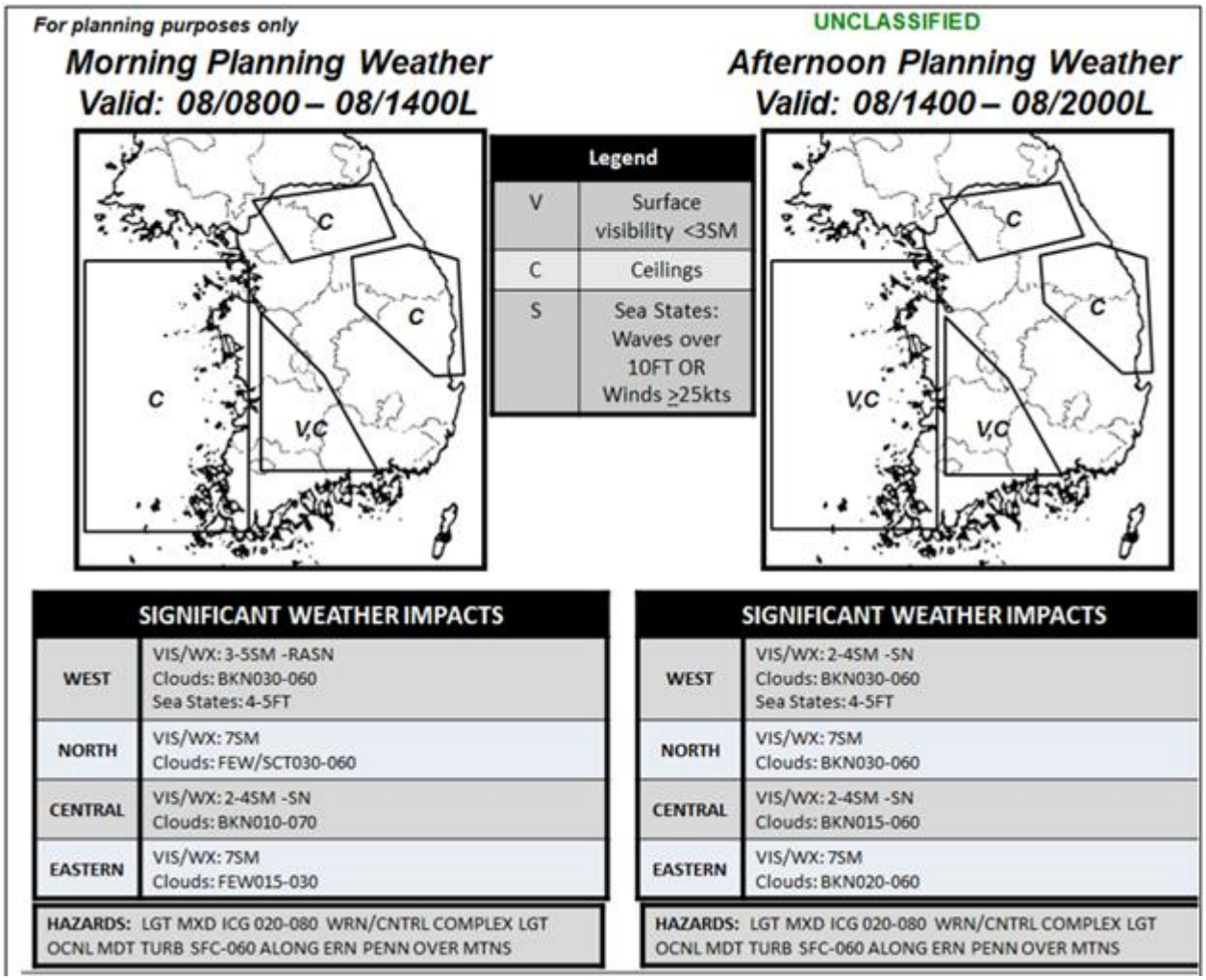
HEAVY SNOW ACCUMULATION ≥ 2 inch in 12 hours	120 min	Affects roads and RCR	See OAB PLAN 32-1002B, *Snow and Ice Control*
		Interruption of comm/power	CS personnel take protective action
		Possible roof damage	Personnel on standby to clear roofs
BLIZZARD	90 min	Structural damage to aircraft	Hangar Aircraft
		Personnel travel risk	Key/Essential personnel only

Attachment 4

EXAMPLE AIRSPACE PLANNING WEATHER PRODUCT

A4.1. General. Airspace Planning weather will be completed by the forecaster each morning and posted onto the SharePoint. These products will not be amended by the forecaster.

Figure A4.1. Planning Weather.



Attachment 5

EXAMPLE 5-DAY FORECAST

A5.1. General. A 5-Day forecast is created and posted daily to the sharepoint page. This forecast is a very general forecast that is used for planning purposes for the local flying area over the next few days.

Figure A5.1. Example Forecast.

FOR PLANNING PURPOSES ONLY

OSAN AB 5 DAY FORECAST

Wednesday 26		Thursday 27		Friday 28		Saturday 29		Sunday 30	
Sunrise: 5:57	Sunset: 19:09	Sunrise: 5:58	Sunset: 19:08	Sunrise: 5:59	Sunset: 19:06	Sunrise: 6:00	Sunset: 19:05	Sunrise: 6:01	Sunset: 19:03
									
SHOWERS	MOSTLY CLOUDY	PARTLY CLOUDY	PARTLY CLOUDY	PARTLY CLOUDY	PARTLY CLOUDY	PARTLY CLOUDY	PARTLY CLOUDY	PARTLY CLOUDY	MOSTLY CLOUDY
Mist and light showers in the early morning hours with cloudy conditions for the majority of the day.		Mist in the early morning hours with partly cloudy conditions though out the day.		Mist in the early morning hours and fair weather expected for the remainder of the day.		Mist in the morning with fair weather expected to dominate throughout the day.		Mist in the morning with fair weather expected and increasing cloud coverage in the evening.	
5M /-SHRA BR	7SM	4SM/BR	7SM	2SM/ BR	7SM	3SM / BR	7SM	3SM/BR	7SM
NW 05-10KT	W 05-10KT	W 05-10KT	SW 05-10KT	W 05-10KT	NW 10-15KT	NW 05-10KT	SE 10-15KT	SE 05-10KT	E 05-10KT
64°F	76°F	63°F	77°F	64°F	79°F	64°F	81°F	65°F	83°F

LUNAR DATA
Moonrise: 1615L
Moonset: 0149L
Illumination: 78%

August 2015

AVERAGE TEMPERATURES MAX: 85°F MIN: 71°F

Monthly Average	Precip	10.40"	Current Monthly Total	Precip	5.82"
Monthly Average	Snow	0.00"	Current Monthly Total	Snow	0.00"

FORECASTER: Sgt Gilmore

FOR PLANNING PURPOSES ONLY

CURRENT AS OF 2200L 25 Aug 2015

Attachment 6

EXAMPLE HAZARDOUS WEATHER OUTLOOK

A6.1. General. A Hazardous Weather Outlook (HWO) will be sent out by the WF when Osan is expected to be impacted by any Hazardous Weather, Volcano, and Tropical Storm events and sent to 51 FW leadership and the Osan AB populace as necessary. A graphic will also be included in the email with text specific to Osan AB. An example HWO graphic is below:

Figure A6.1. Korea Rainfall Forecast.

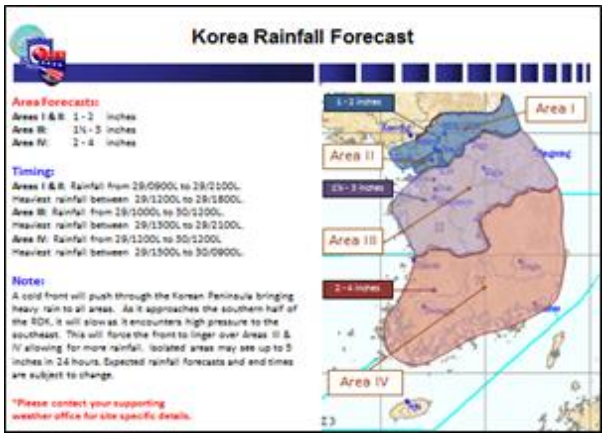


Figure A6.2. Tropical Weather Outlook.

Figure A6.3. Sample Email Text.

Col Hansen and Mustang Leaders,

BLUF: Typhoon Goni is not expected to impact Osan AB within the next 96 hours at this time.

Typhoon 16W (Goni), located approximately 504 NM south-southwest of Kadena AB (19.3N 123.1E), has tracked west-northwestward at 07 knots over the past six hours.

Impacts to US assets from Typhoon 16W (Goni).

Kadena AB, Japan

TCCOR:	4
15KT X-WIND:	CURRENT-EOF
25KT X-WIND:	23/06Z-25/06Z
MAX WINDS/GUSTS:	60G75KT at 24/00Z
PCPN:	3-5 inches
CPA:	85 NM WNW at 24/07Z

Navy White Beach, Japan

TCCOR:	N/A
15KT X-WIND:	N/A
25KT X-WIND:	N/A
MAX WINDS/GUSTS:	60G75KT at 24/00Z
PCPN:	3-5 inches
CPA:	88 NM WNW at 24/08Z

Most recent data available as of 20 Aug 15/21Z (20 Aug 15/11W) (Warning #28).

Please contact the 51 OSS/OSW Airfield Services Forecaster at 784-9370 with any questions or for further information.

Vr,

Osan Weather Team

Attachment 7

TROPICAL CYCLONE CONDITIONS OF READINESS (TCCOR)

A7.1. General. TCCOR is determined by the Director of Operations, US Forces Korea (USFK/J3). TCCOR will be issued when winds greater than 50 knots (including gusts) are forecast to occur anytime during the next 72 hours in a specific region. TCCORs are based on the latest JTWC tropical cyclone bulletin, input from the 607 WS and input from OWS forecasters. TCCOR criteria are as follows:

A7.1.1. TCCOR ONE. Winds greater than or equal to 50 knots (including gusts) are occurring or are forecast to affect the designated area(s) within 12 hours.

A7.1.2. TCCOR TWO. Winds greater than or equal to 50 knots (including gusts) are forecast to affect the designated area(s) within 24 hours.

A7.1.3. TCCOR THREE. Winds greater than or equal to 50 knots (including gusts) are forecast to affect the designated area(s) within 48 hours.

A7.1.4. TCCOR FOUR. Winds greater than or equal to 50 knots (including gusts) are forecast to affect the designated area(s) within 72 hours.

A7.1.5. TCCOR FIVE. Winds greater than or equal to 50 knots (including gusts) are forecast to affect the designated area(s) within 96 hours. This is the default TCCOR throughout the Pacific Typhoon season (1 June to 30 November).

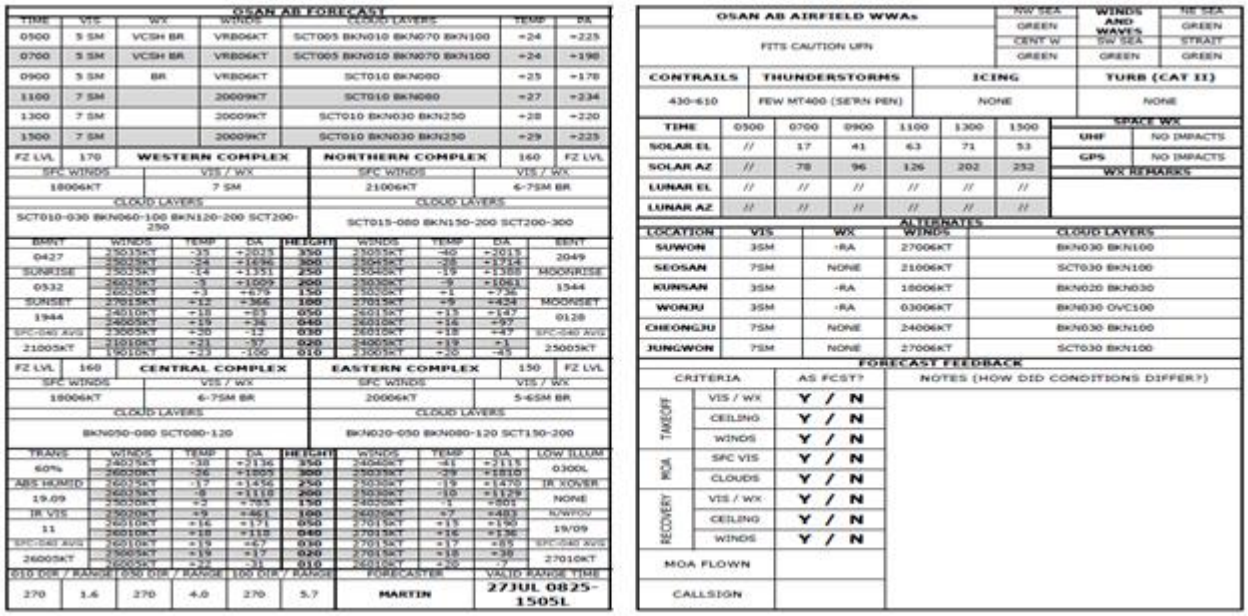
A7.1.6. TCCOR ALL CLEAR. Winds greater than or equal to 50 knot (including gusts) are no longer forecast to affect the designated area.

Attachment 8

EXAMPLE MISSION WEATHER PRODUCT (MWP)

A8.1. General. This is an example of a MWP provided to the 25FS & 36FS prior to each sortie, this is also briefed at mass briefings. This product is coordinated with the flying squadron leadership to ensure the product contains decision grade material applicable to their missions.

Figure A8.1. Sample MWP.



OSAN AB FORECAST

TIME	VIS	WX	WINDS	CLOUD LAYERS	TEMP	DA
0500	5 SM	VCSH BR	VRB06KT	SCT005 BKN010 BKN070 BKN100	+24	+225
0700	5 SM	VCSH BR	VRB06KT	SCT005 BKN010 BKN070 BKN100	+24	+198
0900	5 SM	BR	VRB06KT	SCT010 BKN080	+25	+178
1100	7 SM		20009KT	SCT010 BKN080	+27	+234
1300	7 SM		20009KT	SCT010 BKN030 BKN250	+28	+220
1500	7 SM		20009KT	SCT010 BKN030 BKN250	+29	+225

FZ LVL	170	WESTERN COMPLEX		NORTHERN COMPLEX		160	FZ LVL
SFC WINDS		VIS / WX		SFC WINDS		VIS / WX	
18006KT		7 SM		21006KT		6-7SM BR	
CLOUD LAYERS				CLOUD LAYERS			
SCT010-030 BKN060-100 BKN120-200 SCT200-250				SCT015-080 BKN150-200 SCT200-300			

BMNT	WINDS	TEMP	DA	HEIGHT	WINDS	TEMP	DA	BENT
0427	25035KT	-35	+2035	350	23035KT	-40	+2015	2049
	25035KT	-24	+1656	300	23045KT	-28	+1714	
SUNRISE	25025KT	-14	+1351	250	23045KT	-19	+1388	MOONRISE
0532	26025KT	-5	+1009	200	23030KT	-9	+1061	1544
	26020KT	+3	+679	150	23020KT	+1	+736	
SUNSET	27015KT	+12	+366	100	27015KT	+9	+424	MOONSET
1944	24010KT	+18	+85	050	26015KT	+13	+147	0128
	24005KT	+19	+36	040	26010KT	+16	+97	
SFC-040 AVG	23025KT	+20	-12	030	26010KT	+18	+47	SFC-040 AVG
21005KT	21010KT	+21	-57	020	24005KT	+19	+1	25005KT
	19010KT	+23	-100	010	23003KT	+20	-45	

FZ LVL	160	CENTRAL COMPLEX		EASTERN COMPLEX		150	FZ LVL
SFC WINDS		VIS / WX		SFC WINDS		VIS / WX	
18006KT		6-7SM BR		20006KT		5-6SM BR	
CLOUD LAYERS				CLOUD LAYERS			
BKN050-080 SCT080-120				BKN020-050 BKN080-120 SCT150-200			

TRANS	WINDS	TEMP	DA	HEIGHT	WINDS	TEMP	DA	LOW ILLUM
60%	24025KT	-38	+2136	350	24040KT	-41	+2115	0300L
	26030KT	-26	+1805	300	25035KT	-29	+1810	
ABS HUMID	26025KT	-17	+1456	250	26030KT	-19	+1470	IR XOVER
19.09	26025KT	-8	+1110	200	25030KT	-10	+1129	NONE
	25020KT	+2	+765	150	24020KT	-1	+801	
IR VIS	25010KT	+9	+461	100	24020KT	+7	+483	N/WPOU
11	26010KT	+16	+171	050	27015KT	+15	+190	19/09
	26010KT	+18	+118	040	27015KT	+16	+136	
SFC-040 AVG	26010KT	+19	+67	030	27015KT	+17	+85	SFC-040 AVG
26005KT	25005KT	+19	+17	020	27015KT	+18	+38	
	26005KT	+22	-31	010	26010KT	+20	-7	27010KT

010 DIR / RANGE	030 DIR / RANGE	100 DIR / RANGE	FORECASTER	VALID RANGE TIME
270 1.6	270 4.0	270 5.7	MARTIN	27JUL 0825-1505L

OSAN AB AIRFIELD WWAs

FITS CAUTION UFN

NW SEA	GREEN
CENT W	GREEN
SW SEA	GREEN

WINDS AND WAVES

NE SEA	GREEN
STRAIT	GREEN

CONTRAILS	THUNDERSTORMS	ICING	TURB (CAT II)
430-610	FEW MT400 (SE'RN PEN)	NONE	NONE

TIME	0500	0700	0900	1100	1300	1500
SOLAR EL	//	17	41	63	71	53
SOLAR AZ	//	78	96	126	202	252
LUNAR EL	//	//	//	//	//	//
LUNAR AZ	//	//	//	//	//	//

SPACE WX	
UHF	NO IMPACTS
GPS	NO IMPACTS
WX REMARKS	

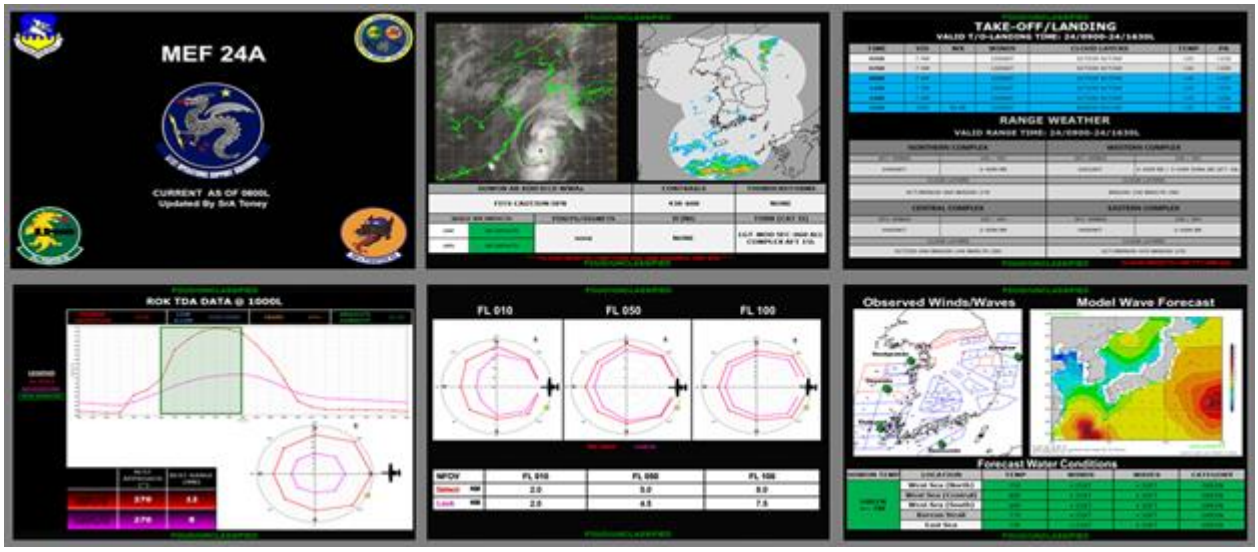
ALTERNATES

LOCATION	VIS	WX	WINDS	CLOUD LAYERS
SUWON	3SM	-RA	27006KT	BKN030 BKN100
SEOSAN	7SM	NONE	21006KT	SCT030 BKN100
KUNSAN	3SM	-RA	18006KT	BKN020 BKN030
WONJU	3SM	-RA	03006KT	BKN030 OVC100
CHEONGJU	7SM	NONE	24006KT	BKN030 BKN100
JUNGWON	7SM	NONE	27006KT	SCT030 BKN100

FORECAST FEEDBACK

	CRITERIA	AS FCST?	NOTES (HOW DID CONDITIONS DIFFER?)
TAKEOFF	VIS / WX	Y / N	
	CEILING	Y / N	
	WINDS	Y / N	
MOA	SFC VIS	Y / N	
	CLOUDS	Y / N	
RECOVERY	VIS / WX	Y / N	
	CEILING	Y / N	
	WINDS	Y / N	
MOA FLOWN			
CALLSIGN			

Figure A8.2. Sample Mass Brief.



Attachment 9

MAP OF MILITARY OPERATING AREAS

A9.1. General.

Figure A9.1. A map of the MOAs utilized by the 51 FW.